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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,075	01/03/2002	Tomoharu Kajiyama	HIRA.0021	2462

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EXAMINER
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FORMAN, BETTY J

ART UNIT	PAPER NUMBER
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1634

DATE MAILED: 04/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/034,075

Applicant(s)

KAJIYAMA ET AL.

Examiner

BJ Forman

Art Unit

1634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☒ Claim(s) 1 and 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/527,233.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3/01/02  
29/01/03
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Priority***

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/527,233, filed on 16 March 2000.

***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

***Preliminary Amendment***

3. The Preliminary Amendment inserting a first paragraph to cross reference to the parent application is acknowledged.

***Claim Objections***

4. Claims 1 and 4 are objected to because of the following informalities:
  - a. Claim 1, line 3 is objected to because "side" is misspelled "said".
  - b. Claim 1, line 3 is further objected to because there is an apostrophe " ' " following and "and" .
  - c. Claim 4, line 2 is objected to because "µm" is incorrectly recited before "w/mk".
  - d. Claim 4, line 2 is further objected to because "meter · kelvin" is incorrectly written "meter \* kelvin".

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
6. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
  - a. Claims 1-4 are indefinite in Claim 1 for the recitation "the other side" because the recitation lacks proper antecedent basis in the claim. It is suggested that Claim 1 be amended to provide proper antecedent basis e.g. replace "the other side " with "a second side" or "a side opposite said one side".

Art Unit: 1634

b. Claims 1-4 are indefinite in Claim 1 for the recitation "though the cross section" because the recitation lacks proper antecedent basis in the claim. Therefore, it is unclear what cross section is being described. It is suggested that claim 1 be amended to provide proper antecedent basis e.g. replace "the" with "a" and after "cross section" insert "of the first membrane".

c. Claims 1-4 are indefinite in Claim 1 for the recitation "each of the islands is provided with a temperature controller..." because it is unclear whether the recitation is a method step of providing a controller to the islands; whether the islands are connected to a controller; or whether the islands comprise a controller. It is suggested that Claim 1 be amended to clarify.

d. Claim 4 is indefinite for the recitation "the heat conductivity" because the recitation lacks proper antecedent basis in the claim. It is suggested that Claim 4 be amended to provide proper antecedent basis e.g. replace "the heat conductivity of said first membrane is" with "said first membrane has a heat conductivity of"

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.



Art Unit: 1634

8. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Yasuda et al (U.S. Patent No. 6,093,370, filed 10 June 1999).

Regarding Claim 1, Yasuda et al disclose a biochemical reaction detection apparatus comprising a first membrane, a plurality of island on one side of the membrane and probe cells for immobilizing probes said probe cells being provided on the other (opposite) side of the membrane wherein the islands are spaced from each other with intervals and each of the islands is provided with a temperature controller for heating and temperature control of the probe cells (Column 11, lines 43-62).

9. Claim 4 is rejected under 35 U.S.C. 102(e) as being anticipated by Yasuda et al (U.S. Patent No. 6,093,370, filed 10 June 1999) as defined by Handbook of Chemistry and Physics, The Chemical Rubber Publishing Co., Cleveland, Ohio, 1963, pages 2527-2531).

Regarding Claim 4, Yasuda et al disclose a biochemical reaction detection apparatus comprising a first membrane, a plurality of island on one side of the membrane and probe cells for immobilizing probes said probe cells being provided on the other (opposite) side of the membrane wherein the islands are spaced from each other with intervals and each of the islands is provided with a temperature controller for heating and temperature control of the probe cells (Column 11, lines 43-62) wherein the membrane is thermally conductive and insulating (Column 11, lines 44-46) e.g. glass (Column 13, lines 35-57). Handbook of Chemistry and Physics provides the thermal conductivity of glass as being between 0.001-0.0025 calories/second · centimeter (depending on the type of glass). Converting calories/second · centimeter to w/mk (1 calorie/second · centimeter =418.5 w/mk) the glass

Art Unit: 1634

substrate of Yasuda et al has a conductivity of between 1.0 and 0.4 w/mk which is less than 10w/mk as instantly claimed.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuda et al (U.S. Patent No. 6,093,370, filed 10 June 1999) in view of Sosnowski et al (U.S. Patent No. 6,051,380, filed 5 December 1997).

Regarding Claims 2 and 3, Yasuda et al disclose a biochemical reaction detection apparatus comprising a first membrane, a plurality of island on one side of the membrane and probe cells for immobilizing probes said probe cells being provided on the other (opposite) side of the membrane wherein the islands are spaced from each other with intervals and each of the islands is provided with a temperature controller for heating and temperature control of the probe cells (Column 11, lines 43-62) but they are silent regarding the length of intervals between the islands. However, intervals of longer than 50 $\mu$  m (Claim 2) and longer than 100 $\mu$  m (Claim 3) were well known in the art at the time the claimed invention was made as taught by Sosnowski et al (Column 23, lines 16-23 and 52-54). Sosnowski et al teach a similar biochemical detection apparatus comprising a first membrane, a plurality of island on one side

Art Unit: 1634

of the membrane and probe cells for immobilizing probes said probe cells being provided on the other (opposite) side of the membrane wherein the islands are spaced from each other with intervals (Column 21, lines 36-Column 22, line 30) wherein due to the complexity of underlying circuitry, the interval (spacing) between islands is determined based on the number of islands i.e. as the number of islands increase, the spacing increases proportionally (Column 23, lines 16-23) wherein a support having 64 microlocations has intervals of 50 $\mu$  m (Column 23, lines 46-54). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the island intervals of Sosnowski et al to the apparatus of Yasuda et al and to design their apparatus to have intervals of 100 $\mu$  m or longer based on the teaching of Sosnowski et al wherein the as the number of islands increase, the spacing increases proportionally (Column 23, lines 16-23). Therefore, one of ordinary skill in the art would have been motivated to provide intervals of 100 $\mu$  m or longer based on a desired number of island being greater than 128 as suggested by the teaching of Sosnowski et al wherein 50 $\mu$  m intervals are required for 64 islands and intervals increase proportionally with the number of islands based on the complexity of required circuitry (Sosnowski et al, Column 23, lines 16-23 and 52-54).

### ***Double Patenting***

12. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground



Art Unit: 1634

provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

13. Claims 1-4 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,428,749. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to a biochemical reaction detection chip and differ only in the limitations of instant Claims 2 and 3 and in the arrangement of the limitations e.g. independent Claim 1 of the '749 patent recites the substrate has a heat conductivity of 10w/mk or less while instant Claim 4 which depends from Claim 1 recites this conductivity limitation. Instant Claims 2 and 3 are drawn to the length of the intervals between the islands. While the '749 claims do not recite these interval limitations, the disclosure of the specification defines their claimed islands as having intervals equal to those instantly claimed (Column 3, lines 30-31). As such, the instantly claimed detection chip is obvious in view of the '749 detection chip, as defined by the patent disclosure (Column 3, lines 30-31).

#### **Conclusion**

14. No claim is allowed.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (703) 306-5878. The examiner can normally be reached on 6:30 TO 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on (703) 308-1152. The fax phone numbers for the organization where this

Application/Control Number: 10/034,075

Page 9

Art Unit: 1634

application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-8724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.



BJ Forman, Ph.D.  
Patent Examiner  
Art Unit: 1634  
April 23, 2003